

RESOURCES

A summary of new products and services for materials research...

Tabletop Sputtering System: Plasma Sciences' ARC system is composed of high-rate planar magnetron sputtering guns and turbomolecular vacuum pumps, and a 200-mm-diameter substrate platform that accommodates up to 8-in.-diameter wafers. The ARCPRO software enables users to set up new recipe programs in less than one minute, and the automatic process control and data storage files allow selection of preset processes. The system includes a rotating stage, an integral thickness monitor, and automatic gun shuttering that eliminates cross contamination. Applications include optical coatings, sensor devices, solar cells, thin film and superconductor research, and more.

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▲ **Collapsible Storage Tank with Replaceable Liner:** The ZipTank from ILC Dover provides temporary storage in a two-component system featuring a high-strength fabric outer restraint and a chemically resistant, replaceable inner liner. The ZipTank folds for storage when not in use, and the replaceable liner permits sequential storage of incompatible products. Fugitive emissions and air contaminations are eliminated because the tank collapses to fluid level.

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99.998% Pure Silicon Tetrafluoride: Solkatronic Chemicals' Megabit® grade silicon tetrafluoride for semiconductor processing may be used for plasma etching and as a silicon source in the production of amorphous silicon films. Packaged in microPure® cylinders to ensure long-term integrity, the product is available in cylinder sizes of 3, 7, and 44 liters.

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Two-Channel High-Voltage Amplifier: TREK's Model 50/750-2 modular solid-state amplifier consists of two independent channels, each with a voltage gain that is adjustable from 10 to 150. The output voltage can program from 0 to -1500 V and 0 to 1500 V, or ± 750 V. Amplifier channels have peak output currents of 100 mA and a 125 V/ μ s slew rate, and the small signal bandwidth is dc to 30 kHz. Applications include control of large piezoelectric devices and inclusion in feedback circuitry where a preamplifier works in conjunction with an amplifier channel to control dynamic loads.

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Loadlock System for Expanded Motions: The MASCOT (MESC Sample Cluster Operating Tool) from Surface/Interface is an MESC-compatible, high-vacuum-compatible, single-wafer-access system for the cluster tool environment. Users can manually load wafers into an MESC-standard process module without breaking vacuum, access an off-line cluster module, test off-line cluster tools prior to installation, evaluate preliminary processes by testing wafers on a single-use basis, and more. The MASCOT can also move in multiple directions due to a dynamic end effector which provides vertical motion that is orthogonal to the transfer direction.

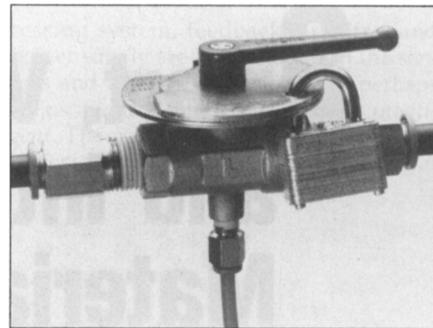
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Noncontact Optical Profiler: The RST rough surface tester from WYKO measures surface roughness and step heights to 100 μ m with a resolution of 3 nm on surfaces such as textured aluminum and steel, etched silicon, plastics, ceramics, magnetic tape and diskettes, and paper. Each data point is processed independently, so surfaces with discontinuities or steeply sloped subareas can be measured without those regions affecting the surrounding data. Results are displayed in 3-D color graphics with surface statistics. The DOS-based software features a database and networking, and optional printers and an isolation table are available.

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Fiber Optics Coating Removal Kit: Dynaloy's solvent kit allows users to remove coatings and polymer claddings from optical fibers made by Ensign Bickford Optics, 3M Fiber Optics, and Corning Glass Works, among others. The kit consists of one pint each of six different solvents, and applications include splicing and connectorizing.

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▲ **Lockable Vented Ball Valves:** Series 0499 valves from Legris have tapped exhaust for lockout of hazardous energy sources. The valves feature unidirectional flow and are available in 1/4-in., 3/8-in., 1/2-in., 3/4-in., and 1-in. sizes. Pressurized up to 580 PSI in a temperature range of -20 to 80°C, the valves can handle compressed air, or fluids and inert gases compatible with their brass, nickel-plated brass, graphite-loaded nylon, and Buna-N construction.

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Tabletop UV Micromachining System: The UV-1000 from Potomac Photonics uses a UV waveguide laser operating at 308, 248, or 193 nm to provide system access to deep UV wavelengths. Laser pulse repetition rates extend to 2,000 Hz for direct-write shaping, patterning, and marking of metal films, ceramics, glass, organics, and polymers. Matched beam delivery optics and a high-resolution video viewing system can access spatial scales in the micron range, and maximum attainable fluence is about 20 J/cm². Options include beam-shaping optics and a computer interface for motion control.

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Single-Monitor Wafer Inspection and Review Workstation: Nikon's DR-100 consists of hardware and DART™ (Defect Area Revisit Technology) software linked to a live video system, a microscope equipped with a programmable stage, and a wafer loader. Users can review and recall defects in multiple layers simultaneously, classify or reclassify defects, examine graphical maps of defects on multiple layers, create images of defect areas, and more. The station provides a Windows™-type environment with locations on the screen for a full wafer map, an enlarged diagram of the die being inspected, a list of possible defects, and the live video image. Defects can be represented by numbers or colors on the map and diagram.

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